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(54) Title of the Invention: Highly Efficient Heat Dissipating Keyboard for a Notebook Computer

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[57] Claims:

1. A type of highly efficient heat dissipating keyboard for use in a notebook computer which is characterized in that:

the bottom portion of said keyboard has a two-phase heat-conducting plate, with the bottom face of said heat-conducting plate being in surface contact with the central microprocessor inside the notebook computer,

said heat-conducting plate is a metal plate having a hollow structure with an inner chamber, with the wall surface of the above mentioned inner chamber having a capillary structure, and

after exhausting the air from the inner chamber until pressure reaches an appropriate value and a vacuum state is produced, it is refilled with a certain amount of working fluid and sealed, so that a saturated low-pressure state, in which liquid and vapor coexist, is created inside the inner chamber, which causes the heat of the above mentioned central microprocessor to be quickly conducted to the above mentioned keyboard, where it is dispersed and dissipated.

2. The highly efficient heat dissipating keyboard for use in a notebook computer according to Claim 1, wherein the above mentioned heat-conducting plate has wing-shaped protrusions for mating with the above mentioned keyboard.

3. The highly efficient heat dissipating keyboard for use in a notebook computer according to Claim 1, in which the above mentioned appropriate value to which the air is exhausted from the inner chamber is 10^{-3}~10^{-4} torr.

4. The highly efficient heat dissipating keyboard for use in a notebook computer according to Claim 1, in which the above mentioned working fluid filling the inner chamber is acetone, water, methanol, or product FC-72 from 3M Company.

5. The highly efficient heat dissipating keyboard for use in a notebook computer according to Claim 1, in which the above mentioned capillary structure of the wall surface in the inner chamber of the heat-conducting plate is created by a plurality of microscopic grooves.

6. The highly efficient heat dissipating keyboard for use in a notebook computer according to Claim 1, in which the above mentioned capillary structure of the wall surface in the inner chamber of the heat-conducting plate is created by a metal net closely adhering to the wall surface of the inner chamber.

7. The highly efficient heat dissipating keyboard for use in a notebook computer according to Claim 7, in which, in the above mentioned capillary structure of the wall surface in the inner chamber of the heat-conducting plate, the above mentioned metal net is secured and closely adhered through the use of a disk spring.

Brief Explanation of the Figures:

Figure 1 is a three-dimensional explanatory figure of an application example of the present invention.

Figure 2 is a cross sectional view of an application example of the present example taken along line A-A in Figure 1.

Figure 3, 4 and 5 are similar to Figure 2, but respectively show different methods of forming the inner chamber structure and the capillary structure.

Figure 1

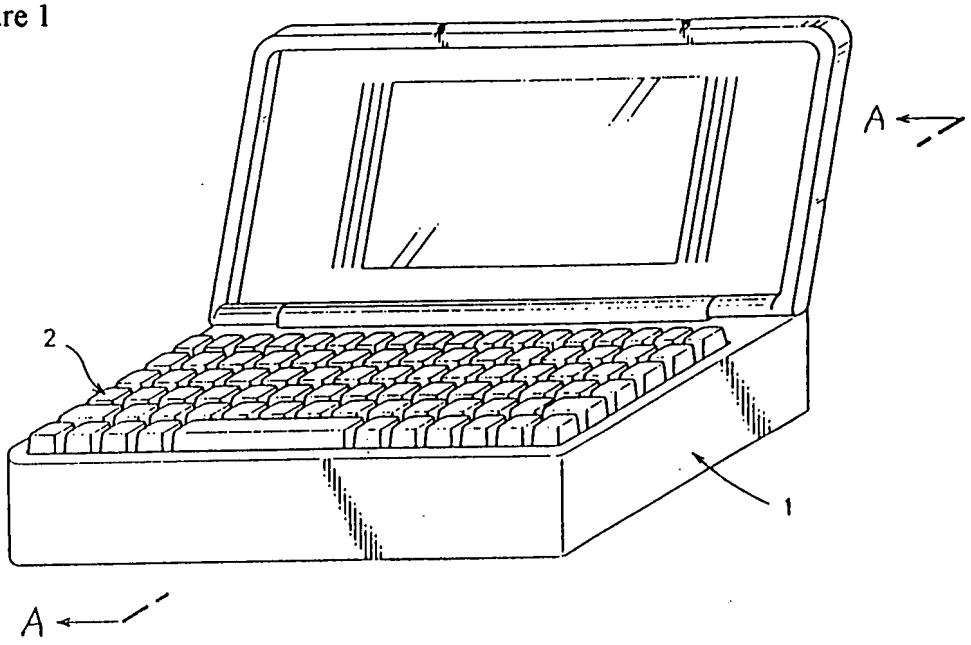

Figure 2

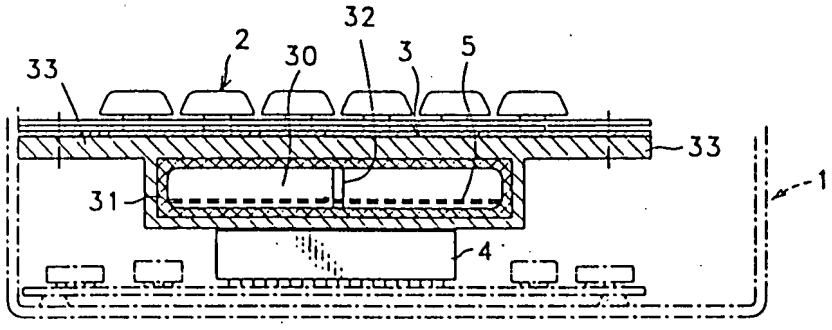

Figure 3

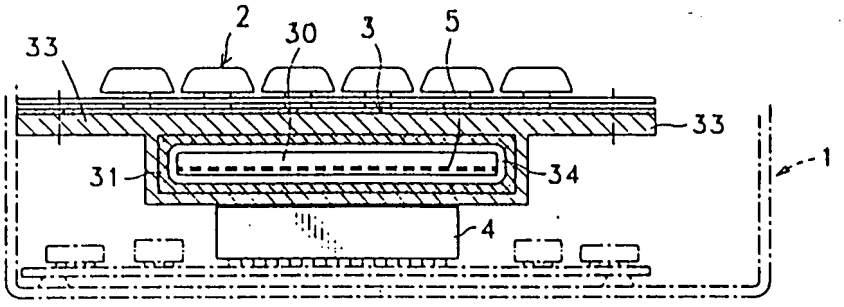

Figure 4

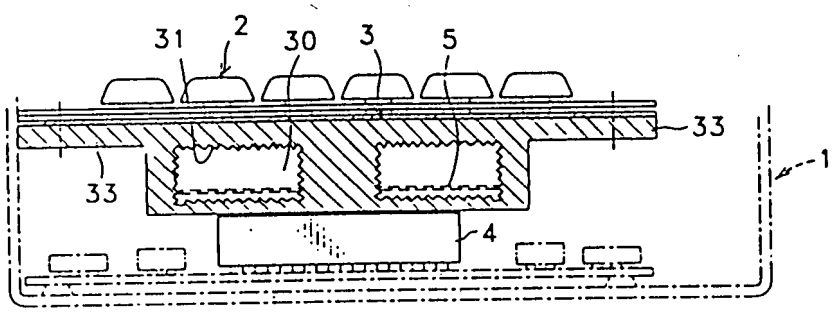

Figure 5